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CASE REPORT

A Case of Esophageal Adenocarcinoma Metastasized to the Scalp

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Cutaneous metastases from internal malignancies are, occurring in 0.5% to 9% of cases. Lung, breast, and colorectal cancers are common primary tumors that metastasize to the skin; cutaneous metastasis usually occurs on the chest wall and abdomen as asymptomatic nodular patterns. Esophageal cancer is not nearly as common as breast, lung, and colorectal cancers, and esophageal cancer rarely metastasizes to the skin. Cutaneous metastasis of esophageal cancer is rare and metastasis to the scalp is extremely rare. Only a few cases of cutaneous metastases of esophageal cancer have been reported in Korea. Most of the cases involved cutaneous metastases arising from esophageal squamous cell carcinoma; however, there have been several reports describing cutaneous metastases from esophageal adenocarcinomas. Herein, we describe a case of metastatic skin cancer that originated from esophageal adenocarcinoma. **(Ann Dermatol 21(2) 164～167, 2009)**

-Keywords-
Adenocarcinoma, Esophagus, Metastasis, Scalp

INTRODUCTION

Cutaneous metastases from internal malignancies occur in 0.5% to 9% of cases. Such cutaneous metastases occur at any age, but most frequently arise in the 6th and 7th decades of life[1,2]. They usually originate from cancers of the breast, lung, and large bowel[2]. Cutaneous metastases most often present as asymptomatic, firm nodules. The scalp is an unusual site of cutaneous metastases and the clinical manifestations usually include nodules or alopecia neoplastica[3].

Esophageal cancer has a poor prognosis and seldom metastasizes to the skin. In fact, the skin accounts for only 1% of the metastatic sites for esophageal cancer[4]. In Western countries, the incidence of esophageal adenocarcinoma has increased to 50% of all esophageal cancers, but has not increased in Asia, including Korea[5]. We report an unusual case of a patient who presented with a hard nodule on the scalp which was diagnosed as metastatic esophageal adenocarcinoma.

CASE REPORT

A 58-year-old Korean woman presented with dysphagia and dyspepsia for 4～5 months. An endoscopy was performed and biopsies were obtained from the tumor, which was adjacent to the gastroesophageal junction. The patient was diagnosed with esophageal adenocarcinoma based upon the histopathologic findings. Metastases of esophageal adenocarcinoma to the right third anterior rib and the aortocaval lymph nodes were noted through positron emission tomography-computed tomography (PET-CT). The patient underwent a total esophago-gastrectomy and received adjuvant chemotherapy and radiotherapy.

Seven months later, she visited the Department of Dermatology with a hard nodule which had developed on the occipital area of the scalp 2 weeks earlier. Physical examination revealed a flesh-colored 1 cm sized nodule on the occipital area (Fig. 1). The histopathologic findings showed multiple poorly differentiated cystic and ductal spaces lined with atypical epithelial cells, suggestive of glandular formation in the dermis (Fig. 2A). Basophilic mucoid stromal tissues surrounding the tumor cells were

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Fig. 1. 1 cm sized flesh-colored hard nodule on the occipital area of the scalp.

observed. At high power magnification, the specimen revealed cytologic atypia with pleomorphic and hyperchromatic nuclei (Fig. 2B). To evaluate the primary origin of the nodule, special stains and immunohistochemical studies were performed. The tumor cells were stained with alcian blue and periodic acid-schiff (PAS). In addition, carcinoembryonic antigen (CEA) and epithelial membrane antigen (EMA) were positive (Figs. 2C and D). The serum CEA level was elevated to 14.76 ng/mL (normal value, 0～5 ng/mL), while the CA 19-9 level was within normal limits.

DISCUSSION

Skin metastases from internal malignancies are uncommon and sometimes are the first presentation of a carcinoma with a poor prognosis. In Korea, the incidence of cuta-

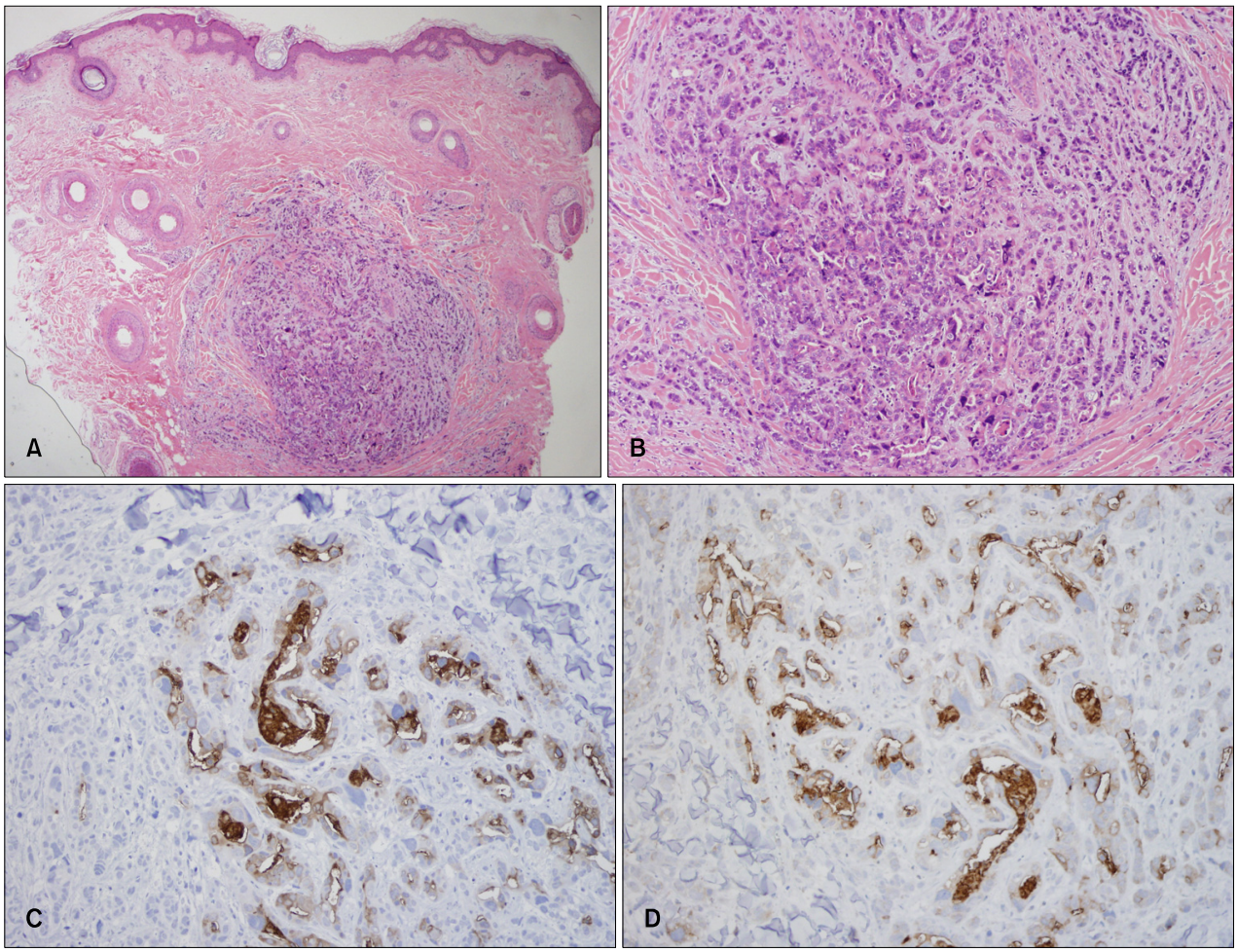

Fig. 2. (A) Multiple poorly differentiated cystic and ductal spaces lined with atypical epithelial cells forming a glandular structure in the dermis (H&E, ×40). (B) At high power magnification, cytologic atypia with pleomorphic and hyperchromatic nuclei and apoptotic necrosis were observed (H&E, ×100). (C) The tumor cells show immunoreactivity with CEA (CEA, ×100). (D) Immunohistochemical staining shows diffuse membrane staining with EMA (EMA, ×100).

neous metastases from internal malignancies has been reported to be between 0.11% and 1.1%[6-8]. In most cases, cutaneous metastases occur during the course of metachronous metastases, and develop 2.9 years later on average[9]. The median survival of patients with squamous cell carcinoma has been reported to be 4.7 months after cutaneous metastasis[10]. The clinical appearances of metastatic cutaneous lesions include inflammatory papules and patches or erythematous, indurated plaques, or fixed subcutaneous nodules, as in our case.

Esophageal cancer is one of the cancers associated with a high mortality rate. Esophageal cancer seldom metastasizes to the skin. In a large study of 7,316 cancer patients with metastases to the skin, cutaneous metastasis from esophageal cancer was not observed[11]. In other large study involving cutaneous metastastatic cancers, there were three cases of esophageal cancer which had metastasized to the skin. Among the cases, one was squamous cell carcinoma, another was adenocarcinoma, and the other was undifferentiated carcinoma[12]. Cutaneous metastases of esophageal cancers are extremely rare, and Quint et al[4] reported the incidence of cutaneous metastases of esophageal cancer to be 1%. All cases of esophageal adenocarcinoma arising from Barrett esophagus as a complication of chronic gastroesophageal reflux occur at or near the gastroesophageal junction, as in our case[13].

Until recently, squamous cell carcinoma was the most common histologic subtype of esophageal cancer. However, in recent decades there has been a rapid increase in the incidence of esophageal adenocarcinoma in Western countries[14]. Cutaneous metastases of esophageal cancer are extremely rare; however, due to the widening spectrum of therapeutic alternatives and improving survival rates, metastatic disease has become more common[15]. According to a recent report, survival differences based on histology have been observed, and the adenocarcinoma subtype had a slightly longer survival rate[16]. They suggested that the introduction of endoscopic surveillance programs for Barrett's esophagus might explain the more pronounced improvement in survival among patients with adenocarcinoma compared to patients with squamous cell carcinoma. Since cutaneous metastatic esophageal cancer itself is rare, survival differences by histology in cutaneous metastatic esophageal carcinoma have not been investigated. However, the two histologic subtypes cannot be distinguished based on clinical features.

The histopathologic features of cutaneous metastasis give physicians important clues in identifying primary malignant tumors. Recently, immunohistochemical stains which detect antigens of tumors using specific antibodies have been widely used to identify primary tumors. Based on that rationale, we used various immunohistochemical stains to identify the origin of the metastases. CEA and EMA, which are common antigens in tumors, enabled us to identify the origin of the malignant tumor. The tumor cells reacted positively with alcian blue and PAS stains, which indicated that the tumor cells had components of mucin, mucoprotein, and glycogen. The immunohistochemical findings in our case were sufficient to suggest esophageal adenocarcinoma as the origin of the primary tumor. CK7 and CK20 are often used to differentiate between Barrett's esophagus and gastric cardiac intestinal metaplasia. Usually, CK7/20 is stained in the type C pattern (weak patch stain with CK7; surface and crypt epithelium with CK20) in Barrett's esophagus, but no specific stain in gastric cardiac lesions[17]. Immunostaining with CK7/CK20 generally has moderate-to-high sensitivity and specificity in distinguishing metaplasic tissue of the esophagus and stomach. However, there is controversy in the utilization of CK7/20 staining to differentiate primary tumors because CK7/20 staining results in a lack of consistency according to the literature[18].

In the Korean literature, there have been only a few cases of cutaneous metastases from esophageal cancers. One cutaneous metastatic lesion appeared at the end of a digit as a papule[19], another occurred on the lower lip as a nodule[20], and a third case presented on the scalp as a nodule[21]. However, none of the cases were from esophageal adenocarcinoma, but were from squamous cell carcinoma of the esophagus. Although the lifestyle of Korean society has recently become westernized, the incidence of esophageal adenocarcinoma has not increased. Thus, metastatic skin cancer from esophageal adenocarcinoma might be exceedingly rare compared to Western countries. This case suggests that dermatologists should consider the possibility of cutaneous metastases in patients with esophageal adenocarcinomas. Herein, we have described the first case of metastatic skin cancer from esophageal adenocarcinoma occurring on the scalp in the Korean literature.

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